

TECHNICAL REVIEW DOCUMENT
For
MODIFICATION TO OPERATING PERMIT 96OPWE125

Golden Aluminum, Inc.
Weld County
Source ID 1230089

Prepared by Jacqueline Joyce
August 2006

I. Purpose:

This document establishes the decisions made regarding the requested modifications to the Operating Permit for Golden Aluminum, Inc. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division's analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the source's request for modifications submitted to the Division on May 31 and July 27, 2006 and various e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

The renewal operating permit for Golden Aluminum was issued on July 1, 2003. The source submitted a request on May 31, 2006 to revise their permit. Following Division review of the requested modification, the Division indicated to the source, that the requested modifications would qualify as a minor modification under the provisions of Colorado Regulation No. 3, Part C, Section X. The source submitted an application on July 27, 2006 to process the requested revisions as a minor modification to their Title V permit. During processing of the minor modification application, the Division noted that a Title V Operating Permit for this facility is not required, since the source is not major for criteria pollutants and the source took limits on HAP emissions to become a minor (area) source for HAPS (less than 10 tpy of any individual HAP and less than 25 tpy of

combined HAPS) in a facility wide construction permit issued on March 21, 2003. At the time of that construction permit issuance, area sources were (and still are) subject to some requirements in the Secondary Aluminum Production MACT (40 CFR Part 63 Subpart RRR), but could be deferred from filing a Title V permit application until December 9, 2004. Therefore, at the time of issuance of the construction permit to make the facility a minor source for HAPS, the Title V permit could have been cancelled. EPA recently promulgated revisions to 40 CFR Part 63 Subpart RRR to completely exempt area sources from the obligation to obtain a Title V permit (published in the Federal Register on December 19, 2005). Therefore, at this time, the source is not required to have a Title V permit. In the interest of making these revisions to the facility, the source has elected to retain their Title V permit and will in the future submit an application to get the construction permit reissued for this facility and upon issuance of that construction permit, request that the Title V permit be cancelled.

In their modification request the source has indicated that they wish to replace the existing natural gas burners in all three Melter hearths (units S003, S004 and S005) with new air/oxy/fuel burners. The air/oxy/fuel burners are capable of substituting varying percentages of pure oxygen in place of ambient combustion air used to fire the gas burners. Because the burners fire at higher temperatures using pure oxygen, the natural gas required to melt a pound of aluminum decreases. As a result, the replacement of these burners will result in the reduction in natural gas consumption and subsequently the reduction of CO emissions. However, since the burners fire at higher temperatures, NO_x emissions will increase as a result of this modification. The source has also requested a slight increase in the quantity of aluminum processed, since PM, PM₁₀ and VOC emissions are based on emission factors that rely on the quantity of aluminum processed, the source has requested a slight increase in PM, PM₁₀ and VOC emissions. In addition, the source has requested that emission limits and fuel consumption limits be combined for the three Melter hearths to allow more flexibility in operation. Finally, the source requested that the holding furnace (unit S007) be removed from the permit as it has been decommissioned.

Changes in emissions due to this project are as follows:

	Production Limits		Potential (Requested) Emissions (tons/yr)				
	Fuel (MMscf/yr)	Al Processed (tons/yr)	PM	PM ₁₀	NO _x	CO	VOC
Melters 1 thru 3, combined (after mod)	568	123,100	37.6	37.6	70.6	23.85	8.06
Melters 1 thru 3 combined (prior to mod)	696.8	122,988	34.11	34.11	35.21	29.27	8.05
Change in Emissions/Production limits for Melters	-108.6	112	3.49	3.49	35.39	-5.42	0.01

	Production Limits		Potential (Requested) Emissions (tons/yr)				
	Fuel (MMscf/yr)	Al Processed (tons/yr)	PM	PM ₁₀	NO _x	CO	VOC
Removal of Holding Furnace			-1.9	-1.9	-2.62	-2.88	-0.83
Total Change in Emissions from Mod			1.59	1.59	32.77	-8.30	-0.82

Facility wide potential to emit before and after the modification is shown in the following tables:

Facility wide potential to emit **BEFORE** the modification is as follows:

Emission Unit	Potential (Permitted) Emissions (tons/yr)				
	PM	PM ₁₀	NO _x	CO	VOC
S001 – preheaters, shredders, cyclones	9.8	9.8			
S002 – delaquering kiln	1.54	1.54	4.97	3.33	2.28
S003 – Melter # 1	11.3	11.3	11.35	9.53	2.79
S004 – Melter #2	11.3	11.3	11.35	9.53	2.79
S005 – Melter # 3	11.5	11.51	12.51	10.21	2.47
S006 – Melt Area Baghouse	11.90	11.90			
S007 – Holding Furnace	1.9	1.9	2.62	2.88	0.83
S008 – Hot Mill	3.9	3.9			
S009 – Two (2) Annealling Furnaces	1.38	1.38	4.22	3.54	4.21
S010 – Cold Mill	9.15	9.15			67.38
S011 – Coil Coating Line	0.86	0.86	11.28	9.47	14
Total	74.54	74.54	58.3	48.49	96.75

Facility wide potential to emit **AFTER** the modification is as follows:

Emission Unit	Potential (Permitted) Emissions (tons/yr)				
	PM	PM ₁₀	NO _x	CO	VOC
S001 – preheaters, shredders, cyclones	9.8	9.8			
S002 – delaquering kiln	1.54	1.54	4.97	3.33	2.28
S003 –S005 – Melters # 1 thru 3	37.6	37.6	70.6	23.85	8.06
S006 – Melt Area Baghouse	11.90	11.90			
S008 – Hot Mill	3.9	3.9			
S009 – Two (2) Annealling Furnaces	1.38	1.38	4.22	3.54	4.21
S010 – Cold Mill	9.15	9.15			67.38

Emission Unit	Potential (Permitted) Emissions (tons/yr)				
	PM	PM ₁₀	NO _x	CO	VOC
S011 – Coil Coating Line	0.86	0.86	11.28	9.47	14
Total	76.13	76.13	91.07	40.19	95.93

Note that, while not shown in the above tables, the modification results in a decrease in actual HAP emissions. HAP emissions from the melters and holding furnace are based on natural gas consumption; therefore, with the reduction of permitted natural gas consumption from the melters and removal of the holding furnace, predicted HAP emissions are lower.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications “are not otherwise required by the Division to be processed as a significant modification” (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that “any change that causes a significant increase in emissions” be processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(i)). According to Part F of Regulation No. 3 (Section I.L, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that a significant increase in emissions is the potential to emit above the PSD significance levels (40 tpy NO_x, 25 tpy PM and 15 tpy PM₁₀). As shown in the above tables, the requested modification results in emission increases that are below the PSD significance levels; therefore, the modification can be processed as a minor modification.

In addition, Colorado Regulation No. 3, Part C, Section I.A.7.b specifies that “any change that is considered a modification under Title I of the act” must be processed as a significant modification. According to Part F of Regulation No. 3 (Section I.L, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that “a Title I modification” is a modification that triggers New Source Performance or MACT standards. The melters are not currently subject to any New Source Performance Standards (NSPS), nor does this modification trigger any NSPS requirements. The melters were previously subject to the MACT requirements for Secondary Aluminum Production (40 CFR Part 63 Subpart RRR) and those requirements are in the current permit. The modification does not trigger any new requirements under Subpart RRR. Therefore, since this modification does not trigger any NSPS or MACT requirements, the Division considers that this modification can be processed as a minor modification.

III. Modeling

The requested modification results in increases of NO_x and PM₁₀ emission below the modeling threshold (40 tpy NO_x and 15 tpy PM₁₀) in the Division’s modeling guidance; therefore no modeling is required.

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source's requested modifications as follows:

Sections II.3 and 4

Removed Section II.4 and combined all three melters in Section II.3. Revised the description of the melters in the table Section I, Condition 5.1 to address the burner replacement (increases the heat input rate and the aluminum processing rate of the units), as well as the tables in Appendices B and C. With the replacement of the burners, requested fuel consumption and CO emissions will be decreased, although permitted NO_x emissions will be increased. As part of this modification, the source has requested a slight increase in the permitted aluminum (Al) throughput limit. PM, PM₁₀ and VOC emissions are estimated based on emission factors in units of lb/ton Al. Therefore, the source has requested a slight increase in VOC emissions with this modification. The PM and PM₁₀ emission factors are based on performance test data. In the current permit, the PM and PM₁₀ emission factors are the same for Melters 1 and 2, but Melter 3 has a higher PM and PM₁₀ emission factors. The source has requested that they be allowed to use the PM and PM₁₀ emission factor for Melter 3 for all three melters; therefore an increase in permitted PM and PM₁₀ emissions has been requested. In addition, as mentioned above, the heat input rate of the melters will change with the burner replacement, this in turn increases the hourly aluminum processing rate, which results in a change of the Reg 1 PM emission limitation. This increase has also been revised in the permit. Finally, the source indicated that individual fuel meters are used to determine fuel consumption from the three melters; therefore, the permit has been revised to reflect this.

Section II.6

Removed conditions for the holding furnace as requested by the source.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Golden Aluminum Operating Permit with the source's requested modifications.

Page following cover page

- Changed the Responsible Official.

General

- Revised Reg 3 citations throughout the permit, as necessary, based on the recent revisions to Reg 3.
- Revised construction permit citations as appropriate to address the facility wide construction permit (03WE0032).
- Renumbered permit conditions as appropriate due to removal of Sections II.4 and II.6 of the permit.

Section I – General Activities and Summary

- Revised the language in Condition 1.1 to remove the discussion regarding the holding furnace since that has been removed.
- Revised the language in Condition 1.1 to address attainment status of the area in which the facility is located. The facility is located in the 8-hr ozone control area.
- Revised the list of construction permits in Condition 1.3 to reflect the removal of Unit S006 (Holding Furnace) and to include the facility wide construction permit (03WE0032) as appropriate.
- Revised the language in Condition 1.4 to indicate that only the provisions in the last paragraph of Section IV, Condition 3.g are state-only enforceable.
- Removed the holding furnace (S007) from the table in Condition 5.1 and revised the AIRS stack number for the melters since the source has opted to group these units together on the APEN and in the permit.

Section III – Permit Shield

- The citation in the permit shield was corrected. The references to Part C, Section V.C.1.b and C.R.S. 25-7-111(2)(I) were removed, since they did not address the permit shield.
- Removed Regulation No. 6, Part B, Section II.C (particulate matter standards) from the table for streamlined conditions (section 3), these limitations applied to the holding furnace that has been removed. Note also that the reference to Condition 7.2 was incorrect in the permit, it should have been 6.2.
- Revised the permit conditions for which Regulation No. 6, Part B, Section III.C standards have been streamlined, some were changed due to combining the melt

furnaces and removing the holding furnaces and one (condition 12.1) should never have been referenced. In addition, corrected the citation (Reg 3, Part B, Section III.C.1) and indicated that it was a state-only enforceable requirement.

Section IV – General Conditions

- Revisions were made to the Common Provisions Regulation (general condition 3), effective September 30, 2002. The appropriate revisions were made to the language in the permit. In addition, removed the statement in Condition 3.g (affirmative defense provisions) addressing EPA approval and state-only applicability. The EPA has approved the affirmative defense provisions, with one exception and the exception, which is state-only enforceable is identified in Section I, Condition 1.4.
- General Condition No. 21 (prompt deviation reporting) was revised to include the definition of prompt in 40 CFR Part 71.
- Replaced the phrase “enhanced monitoring” with “compliance assurance monitoring” in General Condition No. 22.d.
- Added the requirements in Colorado Regulation No. 7, Section V.B (disposal of volatile organic compounds) to General Condition 29.

Appendices

- Replaced Appendices B and C with the latest versions. Removed the holding furnace (S007) from the tables.
- Revised Appendix G (fuel allocation) to reflect the grouping for the melters and to reflect the higher heat input rating with the burner changes.